REMARKS

Claims 7-15 stand rejected on prior art basis and claim 11 stands objected to for informalities. Claim 9 is amended to correct for typographical errors and claim 10 is amended to overcome the Examiner's objection. Applicant respectfully requests the Examiner enter these amendments.

It is noted that any claim amendments are made to merely clarify the language of each claim, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. It is further noted that, notwithstanding any claim amendments made herein, Applicant's intent is to encompass equivalents of all claim elements, even if amended herein or later during prosecution.

Specifically, claims 7-8 and 11-14 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Vargo et al (Vargo) (US 6,167,060) and claims 9-10, and 15-16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Vargo in view of Grabelsky (U.S 6,678,250).

These rejections are respectfully traversed in view of the following discussion.

I. THE PRIOR ART REJECTIONS

THE VARGO REFERENCE

The Examiner alleges that claims 7-8 and 11-14 are anticipated by Vargo. The Examiner is respectfully incorrect for at least four main reasons:

1. The claimed invention is a method for a "modem relay" system, which is not taught or suggested anywhere in the Vargas reference. The Examiner has incorrectly analogized this to Vargo's "novel Internet telephone system architecture for providing full duplex operation" (col. 2:45-46).

2. The Examiner has incorrectly analogized Vargo's Forward Error Correction (FEC) method for voice transmissions using an Internet telephone to the claimed modem relay protocol redundancy.

3. The claimed invention recites designating a "new" data segment and an "oldest" block of data. These elements are not disclosed or taught by Vargo's illustrations of a "data stream," and the Examiner has incorrectly read these elements into Vargas' description of FEC data redundancy.

4. The Examiner has not rejected nor objected to a method step of independent claim 7 of "said remaining retained blocks are encoded into said data packet as redundant data blocks" during the entire prosecution of the present Application. This is therefore a patentable step not found in Vargo.

The Examiner has respectfully mistaken the gateways used in Vargas' IP network to include modems. Vargo does not mention or suggest using a modem relay or any modem transmission of its voice data stream. Therefore, the multiple step elements of the present claims referring to modem relay, modem data, and modem structure in a network, some of which are recited below for reference, are not taught nor suggested by Vargo.

The Examiner has incorrectly analogized a "novel Internet telephone system architecture for providing full duplex operation with voice latency of less than 500 milliseconds" (Vargo, Col. 2:45-46) for the claimed "method for reducing data loss in the event of packet loss in a modem relay connection over a packet network including a transmitting modem and a transmitting gateway, a receiving modem and a receiving gateway..." as recited in claim 7 and the "modem relay connection" in claim 11. The Examiner alleges that Figure 1, Col. 3:35-49 and Figure 6, col. 4:56-67, 5:1-10 show and disclose a modem relay. The Examiner further alleged that "providing sequential blocks of modem data from said transmitting modem to said transmitting gateway,"as recited in claim 1 is "inherently part of the system, because transmitting gateways as shown on Fig. 1, comprise modems, shown on Fig.6, so sequential block of modem data are transmitted from the transmitting gateway." These step elements of providing sequential blocks of modem data from the transmitting modem are not found in Vargo and thus claim 7 is patentable. Fig. 1 only shows boxes in North America and Japan as "GW," which means "Gateway" and Fig. 6 only shows internal mechanisms in the telephone port of a GW (col. 4:3-5 and col. 4:56-65) which does not include a modem. In contrast, every Figure of the present Application shows or describes a modem. The text of Vargo states

> Referring to Fig. 2,each of the PSTN gateway servers consists of a public switched telephone network and a gateway. Each gateway consists of a central processing unit (CPU), the Windows Operating System (OS), gateway software, telecommunications hardware (preferably Natural Microsystems) and a Network Interface Card (NIC) connected by a bus. (Col. 3:50-56)

As is well known in patent law, the terms "consists of" is a closed term, and "modem" is not included in Vargo's parts of a gateway. In fact, col.'s 3-4 state that NICs are used to connect the GWs to the Internet, not modems. Vargo's gateways, as are most gateways, directly attached to the Internet or PSTN, they are not setup in a modem relay system. Further, in the Internet standard Request for Comments 1009 "Requirements for Internet Gateways" (June 1987), gateways are specifically stated that they do not contain modems but could be attached to a modem in certain instances. RFC 1009 would be followed by one skilled in the art because it is

> "a formal statement of the requirements to be met by gateways used in the Internet system. As such, it is an official specification for the Internet community." (page 1)

On page 40, the requirements for maintenance of gateways, the standard states that "Each gateway must operate as a stand-alone device" and that gateways should have "means" to *attach* a modem to a gateway for remote control:

5.3. Gateway O&M Functions

The following O&M functions need to be performed in a gateway:

A. Maintenance -- Hardware Diagnosis

Each gateway must operate as a stand-alone device for the purposes of local hardware maintenance. Means must be available to run diagnostic programs at the gateway site using only on-site tools, which might be only a diskette or tape and local terminal. It is desirable, although not required, to be able to run diagnostics or dump the gateway via the network in case of fault. Means should be provided to allow remote control from the NOC of modems attached

> to the gateway. The most important modem control capability is entering and leaving loopback mode, to diagnose line problems.

Gateways do not "inherently .... comprise modems." The Examiner is incorrect in his assumption, and therefore the method step elements reciting modems and modem data in all the present claims are not disclosed nor suggested by Vargo. The modem relay system is an essential part of the claimed invention (see Application, p. 17: "Because model relay is highly dependent upon transmission of all packets, it is important to provide a data redundancy technique appropriate to the modem relay of the present invention." Some of the claimed step elements that are not taught nor disclosed by Vargo are as follows:

Claim 7:

> a modem relay connection over a packet network including a transmitting modem and a transmitting gateway...
>
> providing sequential blocks of modem data from said transmitting modem to said transmitting gateway...
>
> retaining a predetermined number of sequential blocks of modem data at said transmitting gateway...
>
> each time said transmitting gateway receives a new block of data from said transmitting modem

Claim 11: ...in a modem relay connection over a packet network...

Thus, Vargo is missing disclosure or suggestion for modem relay, modem data, and modem structure in the network, and does not anticipate the claimed invention.

The Examiner has incorrectly analogized the Forward Error Correction (FEC) method for voice transmissions using an Internet telephone, described in Vargo, for the claimed modem relay protocol redundancy. The Examiner has assumed that Vargo's Figure 7 shows actual packets of original voice data being redundantly transmitted. This is an incorrect assumption. Fig. 7 is a mere "illustration" of the Vargo FEC algorithm's method for providing redundant data through FEC packets, not redundant copies of the original media packets. An FEC error correction algorithm for voice transmissions is not a direct redundancy method, and Vargo's specific FEC algorithm does not teach or suggest the

"dividing said data portion into a plurality of segments;

designating one of said segments as a new data segment;

providing sequential blocks of modem data from said transmitting modem to said transmitting gateway;

retaining a predetermined number of sequential blocks of modem data at said transmitting gateway, by dropping the oldest block and retaining the most recent block," etc., of claim 7 nor the step elements of claim 11.

The FEC algorithm is an "important focus" in Vargo for data redundancy:

> "An important focus of the present invention is the particular forward error correction algorithm for providing packet redundancy." (col. 5:3-5)

The main problem with the Examiner's rejections are comparing a secondary FEC data stream, that uses encoded symbols packetized and transmitted in a separate data stream, to the original modem data stream of the present invention that uses "sequential blocks of modem data" that are divided into new and old segments within a packet format, as recited in claim 7.

Vargo's disclosure concentrates on "an important focus of the present invention is the particular *forward error correction* for providing packet redundancy." (col. 5: 3-5) (emphasis Applicant's). Vargo *does not explain* how an FEC encoding scheme works, and therefore does not mention that the packets in Figure 7 are actually the redundant data encoded in FEC packets, not as the original packetized voice data stream between two gateways (which is not modulated/demodulated packetized data).

FEC algorithms operate as follows. Forward error correction algorithms at the transmitter receive packetized voice or other media as input. New packets designated as FEC packets are created and transmitted out of the receiver or original packets are encoded with FEC. FEC packets are associated with multi-media packets when the media packets are used to generate the FEC packets. The payload of the FEC packets contains information describing which media packets correspond to the FEC packets.

In an FEC-enabled transmitter, the transmitter generates FEC packets and

sends them to a receiver. The sender still usually sends a separate original packet stream whether or not an FEC stream is transmitted. This FEC protocol allows the primary media packet stream to be received and used by a receiver that is not compatible with FEC protocols. Some receivers only require that the FEC packet stream is transmitted. There is no need to transmit the original packet stream because all payload data is contained within the FEC stream. The limitation to this procedure is that all receivers must be capable of decoding the FEC packet stream.

The FEC packet stream does not have to be transmitted in the same RTP packet stream as the original media packets. Instead, FEC packets are transmitted in a separate packet data stream with their own packet sequence numbers. In an alternative protocol, FEC packets may be transmitted in as a secondary codec in a redundant coded payload format.

At the receiver end, the FEC packet stream and the original packet stream are received and processed. If none of the original packets are lost, then the FEC packet stream is ignored by the receiver. If any of the original packets are lost or not received after a certain time period, the corresponding FEC packets can be combined with the original packet stream to recovery and reconstruct the original media payload for playout. Sending a second FEC data stream has the drawback of adding a 50% overhead to packet transmission. The formatting of the payload is not affected by FEC packet format If the FEC is included as a redundant codec, then the media packets are transmitted as the main codec according to RFC 2198.

FEC coding techniques allow end systems to recover lost packets from the primary data stream. This includes all of the header fields, CSRC lists, extensions, padding bits, marker and payload type, and other notations from the main packet stream are recoverable for any lost packets. The steps to recovering lost packets are to determine which FEC packet corresponds to the lost packet and then reconstruct the packet format data and payload from the FEC packet.

References for the above summary for FEC can be found in the RFC standards, such as Request for Comments: 2733 "An RTP Payload Format for Generic Forward Error Correction" H. Schulzrinne, Columbia University (December 1999), and Request for Comments: 3453 "The Use of Forward Error Correction (FEC) in Reliable Multicast" J. Gemmell, et al, Cisco (December 2002) (see http://www.faqs.org/rfcs).

Thus, any reference to the secondary, redundant FEC data stream in Vargo cannot be compared to the original packetized modem data stream in the present claimed invention. The Examiner alleges that Fig. 7a and 5:58-62 anticipate "dividing said data portion into a plurality of segments," Fig. 7a-d and 6:5-19 anticipate "designating one of said segments as a new data segment," Fig. 7b and 5:63-67, 6:1-5 anticipate "retaining a predetermined number of sequential blocks of modem data at said transmitting gateway, by dropping the oldest block and retaining the most recent block," Fig. 7b anticipates "providing the most recent block of data in said designated new data segment of said data portion of said packet," Fig 7 b-c and 6:5-20 anticipates "each time said transmitting gateway receives a new block of data from said

transmitting modem, said oldest block is dropped from said retained set of data," as recited in claim 7 and similarly for claim 11. These rejections are respectfully incorrect.

They describe aspects of the FEC algorithm's encoding of the primary data stream in Vargo, as stated above, and do not apply to the original media stream used in the present invention. Further, FEC encoding is a far different method for replacing lost packets than "dividing said data portion (of a packet-not different packets as alleged by the Examiner) into a plurality of segments; designating one of the segments as a new data segment...providing the most recent block of data in said designated new data segment of said data portion of said packet....said remaining retained blocks are encoded into said data packet as redundant data blocks," as recited in claim 7. Applicant's claims are to provide redundant modem data blocks as segments within the same packet, not an FEC encoding algorithm.

The Examiner has alleged Fig. 7 and its corresponding text anticipates "designating one of the segments as a *new data segment*...providing the most recent block of data in said designated *new data segment* of said data portion of said packet....each time said transmitting gateway receives *a new block of data* from said transmitting modem, *said oldest block is dropped* from said retained set of data," as recited in claim 7. This is respectfully incorrect. The Examiner is improperly reading into the Vargo dislcosure that the data encoded for FEC packets in Figure 7 is "new" data or "old" data.

Instead, Vargo merely states that the "data stream is illustrated as 'This is a sentence' and that the stream is "propagating from left to right in the drawing, so that the 'T' comes first, then the 'h,' then the 'i.'" (col. 5, lines 52-62). Vargo is using the FEC data stream as an "illustration" and does not disclose nor suggest that any of the data is "new" or "old," it is merely a "data stream." Thus, the concept and language of "new" data or "old" data is not specifically taught nor suggested by Vargo.

The Examiner has not found step elements of claim 7 in any of the cited references during prosecution, including Vargo. Neither Vargo nor any other cited reference teaches or suggests the claim 7 step of "said remaining retained blocks are encoded into said data packet as redundant data blocks." This language has remained unchanged from the originally filed claim 7. The Examiner failed to state any rejection or objection to this patentable claim step during the entire prosecution of the present Application, and therefore the claimed invention as recited in claim 7 is patentable over the cited references.

THE GRABELSKY REFERENCE

Applicant agrees that Vargo teaches "a dynamical change of the redundancy level/number of sequential blocks in Fig. 7 due to the network condition," but asserts that this is irrelevant to the claimed invention since Vargo is an FEC encoding scheme that uses an FEC data stream in addition to the original data stream for non-modem

relay networks. The combination does not teach or suggest the claimed invention because Gabelsky is alarming for a loss of original packets, while Vargo is changing the redundancy to an FEC encoding scheme. While this is a valid method to change an FEC scheme to adjust for packet loss, it is not the method used by the claimed invention. As stated above, changing the FEC encoding redundancy in the FEC packet stream does not correspond to adjusting the sequential blocks within the same packet, as recited in claim 8, from the original data stream.

THE OBJECTION TO THE SPECIFICATION

The Examiner has objected to the specification, specifically the "X" in the table on page 18. Applicant responded with an explanation of the table -that the "X" in the table is a letter that means no data is in the slot at that time. Examiner then objected to this obvious explanation to the table. The table shows how the redundancy scheme of the modem relay works and has an explanation in the text of starting on page 17 and ending on page 19. The "Seq. #" row at the top of the table is obviously giving a sequence of the data packets, and page 18, line 13 states the packets are being received into a "receiving gateway." One skilled in the art will realize that the 1st packet has no redundancy and therefor only one box has "Data" in it, at the bottom of column "S." The rest of the data length segments are empty, null, blank, indicated by the "X." As the sequence is received, the boxes fill up with data. This is simply the procession of the data packets into the receiving gateway.

CONCLUSION

For the reasons stated above, Applicant submits that claims 7-15, all the claims pending in the present Application, are patentable over the cited references. Applicant requests the Examiner to reconsider and withdraw the rejections. The informalities in the specification have been corrected as requested by the Examiner.

In view of the above amendments, the Examiner is respectfully requested to pass the above application to issue at the earliest possible time. Should the Examiner find the application to be other than in condition for allowance, the Examiner may contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any fees associated with this communication to Client's Deposit Account No. 20-0668.

Respectfully submitted,

Kendal M. Sheets, Reg. No. 47,077
Joseph J. Zito, Reg. No. 32,076
Customer No. 23494
Local Phone: (301) 601-5010

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on August 15, 2005.

Kendal M. Sheets 8/15/05 Date